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EU-Latin American Science Diplomacy

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Abstract

The European Union (EU) has adopted a very generous region-to-region approach towards Latin America in recent decades. However, although the EU adopted the same interregional strategy across different policy areas, the quality of interregional interaction (and success) vary significantly. A telling example is the EU's interregional approach to sign a far-reaching region-to-region association agreement with Latin America: instead of having one overarching EU-LAC agreement, the EU had to negotiate agreements with sub-regions in Latin America, and eventually only successfully concluded an Association Agreement with the Central American region (SICA) as negotiations with MERCOSUR have only recently been re-launched after a deadlock of six years and negotiations with the Andean region failed permanently, leading the EU to conclude bilateral association agreements with several Andean states instead. Another interesting case of EU-driven interregionalism is the case of EU-Latin America science diplomacy. In this policy area, it seems that the EU's interregional approach has been particularly successful, as both regions continuously call for the creation and strengthening of a "Common Area for Higher Education, Research and Technology" and various high-level working groups and action plans have been established to achieve this end. Yet, in contrast to the considerable scholarly attention for understanding the success/failure of EU-driven economic interregionalism, a critical assessment of EU-Latin America interregional cooperation in the field of science, higher education and innovation has not been produced to date. This paper aims to fill this notable academic (and policy-making) gap by providing a thorough overview of (1) the EU's drivers behind this particular foreign policy action and the chosen interregional approach; (2) the applied policy instruments and actions of this specific case of EU-Latin American interregional relations; and (3) achieved impact of this specific case of EU-Latin American interregional relations.

Keywords: European Union, foreign policy analysis, Latin America, interregionalism, science diplomacy, research cooperation, higher education.

On Science Diplomacy

The Concept

Science diplomacy is a recently emerging term in both an EU context, and at a broader international level. The British Royal Society and the American Association for the Advancement of Science (AAAS) distinguish three types of science diplomacy: 'science in diplomacy', 'science for diplomacy' and 'diplomacy for science' (AAAS, 2010, pp.5-6). Science *in* diplomacy is about using scientific insights/knowledge in order to establish effective diplomatic cooperation agreements at government or institutional level. As such, science is used as a tool to build and improve relations between states or to jointly combat global challenges (think of climate change). With diplomacy *for* science, foreign relations and diplomatic activities are enrolled to improve one's own national research and technology capacities. Finally, science *for* diplomacy goes one step further: by establishing scientific relations and using scientific knowledge, diplomatic goals are achieved when there are tensions in relations between certain states or when states are faced with common problems which they cannot solve on their own (think of scientific collaboration networks with Iran). The goal here is to support foreign policy actions by mobilising scientific networks. Science Diplomacy is thus a multi-faceted concept and for the sake of conceptual clarity, and not to overstretch the concept too much, this paper will (only) look at diplomacy *for* science in the meaning of using diplomacy or foreign policy tools to establish stronger cooperation and interaction in the area of research, innovation and higher education, which would eventually benefit one's own research, higher education and innovation capacities.

While the incremental interest in the subject is relatively new, the concept itself is not (Van Langenhove, 2017). The use of positive 'side effects' of scientific collaboration dates back several decades, the interactions between the US and Soviet Union during the Cold War being a known example (ERC, 2016). The United Nations also resorted to the power of science in advancing many diplomatic negotiations on issues ranging from non-proliferation to the definition of the Sustainable Development Goals (Colglazier, 2016). Recently, various national research agencies also started cooperating in the field of science diplomacy (Boers, 2017). For example, the German Centres for Research and Innovation (GCRI) have been established worldwide from 2010 onwards as part of the globalisation strategy of the German Federal Government, and there is also the science diplomacy initiative by the US Department of Foreign Affairs (ERC, 2016). Although science diplomacy is not an entirely new concept, it was not until recently that other major powers such as Canada, India and the EU started to use it more and more and developed their own science diplomacy strategies (Boers, 2017). The renaissance of the concept may be due to the heightened awareness about global challenges which cannot possibly be addressed by one country alone and without a thorough scientific understanding of the issue at stake and the potential solutions (Van Langenhove, 2017). In fact, resolving global threats related to climate change, biodiversity loss or protection of endangered cultural heritage are often referred to in the *rationale* section of science diplomacy strategies and action points. Science diplomacy can therefore be used by governments and regions as part of their for-

eign or development cooperation policies towards other regions in the globe. By focusing on shared research objectives and reaching out to their international counterparts in order to access knowledge and resources, and to further their insights, scientists contribute greatly to fostering communication and understanding across different contexts (Montesquieu Institute, 2016, p.2).

EU science diplomacy and the importance of Latin America therein

Europe, and in particular the European Union (EU), has a high level of scientific excellence and higher education, and has therefore mobilised its scientific potential as a primary mean of action within its external policies like no other region has done before (Van Langenhove, 2017). The current EU Commissioner for Research, Innovation and Science Carlos Moedas made science diplomacy one of his three strategic priorities and recognised "it is essential that we step up our engagement with the rest of the world by supporting science diplomacy and international cooperation". From a scientific perspective, Commissioner Moedas (2016, p.4) noted "The ERC (European Research Community) brand has almost limitless potential, as it epitomises the core values of science diplomacy and provides a strong basis for networking Europe among our international partners". As such, "ERC allows top-class researchers to apply from anywhere in the world and from all fields of science to work on any topic that they deem to be cutting-edge" (Moedas, 2016, p.4). This openness and flexibility paired with high funding levels make it a prime partner for scientists wanting to push the frontier of knowledge". From the diplomatic side, 'The Global Strategy for the EU Foreign and Security Policy' put forward in June 2016 by the EU High Representative for Foreign Affairs and Security Policy (HRVP) Federica Mogherini, also makes explicit reference to science diplomacy in relation to conflict settlement and enhancing resilience in the EU neighbourhood thereby putting science diplomacy becoming more and more prominent on the EU (external) agenda (Montesquieu Institute, 2016). Science diplomacy is also a well-established idea and objective within EU-Latin America (CELAC) relations and cooperation mechanisms. Up to the highest level, at the biannual summits of presidents and heads of states, both EU and CELAC officials have expressed a strong commitment towards the establishment of sustainable and structural scientific cooperation and a "Common Research and Higher Education Area" based on increased research cooperation, enhanced mobility of researchers, educational staff and exchange of knowledge and best practices (European Commission, 2016a). To this end, the last EU-CELAC summit held in Brussels on 10-11 June 2015 was based on the theme: "Shaping our common future: working for prosperous, cohesive and sustainable societies for our citizens" and laid down the necessary groundwork to deepen political dialogue and cooperation in terms of innovation, education and scientific cooperation (EU-LAC foundation, 2015).

Chosen Approach: From 'Region-to-region' or by means of 'interregionalism'

Science Diplomacy is a policy area in which the EU has chosen an 'interregional' approach above all. Interregionalism can be defined as a region-to-region conduction of foreign relations, which is different from the more classical interstate diplomatic relations and global governance. It is a foreign policy instrument or approach, used by the EU to interact with other regions around the world (Selleslaghs, 2014). Interregionalism is often referred to as serving three major (interlinked) goals (Selleslaghs, 2017). First of all, by pursuing interregional dialogues and interaction, the EU promotes and actively contributes to the development of other regional integration schemes in other continents. Secondly, by doing so it also contributes to the EU's strive for becoming an internally as well as externally recognised international actor. By serving as a 'blueprint' or 'best-practice' for many other regions, it legitimises and asserts its power on the international level, which also strengthens its identity as a meaningful political actor at home. Thirdly, interregionalism also serves as a method to promote and defend the EU's interests abroad. More specifically, interregionalism is particularly useful for "achieving gains the EU has been unable to reap through more traditional multilateral and bilateral channels" (Aggarwal & Fogarty, 2005, p.342). Since the very first interregional dialogues in the late 1960s and early 1970s the EU has directed its attention towards three continents: Africa, Asia, and Latin America. However, as Söderbaum et al. (2005, p.279) have pointed out, "interregionalism is particularly strong in the EU's external policies towards Latin America, where the EU has interregional partnerships with the most relevant sub-regions, such as the Andean region, Central America, and above all, with Mercosur".

Latin America is seen as the part of the world where the EU's interregional agenda should bear the most fruit, as it shares similar values like the EU (democracy, human rights, nuclear non-proliferation and multilateralism), and also has a strong will to counter its strong ties with the US. Consequently, the EU adopted a very generous interregional approach towards Latin America. Yet, even though the EU prefers and adopts an interregional approach in most of its relations with Latin America and its sub-regions across various policy areas, its effectiveness and level of success vary significantly. Success is referred as the achievement of pre-set goals for a specific policy area (which in this case, are set to be achieved through an interregional approach). These goals can be found in various official documents, such as the regional strategy plans, but also mid-term reviews and (joint) declarations. However, and in contrast, this topic is often neglected in the academic literature on EU foreign policy (analysis), EU-driven interregionalism, and EU-Latin America cooperation/ relations.

This paper therefore aims to fill this notable academic (and policy-making) gap by providing a thorough overview of (1) the EU's drivers behind this particular foreign policy action (2) and the applied policy instruments or foreign policy actions of this specific case of EU-Latin American interregional relations. In order to do so, this paper draws on the analytical frameworks for studying EU foreign policy performance as

suggested by Blavoukos (2015a; 2015b). By critically analysing and comparing the EU's output and outcome in this specific foreign policy area towards Latin America, thereby differentiating between the declaratory and operational aspects of EU foreign policy. In so doing, this paper expects to determine whether or not the EU was successful in achieving its pre-set goals through the applied interregional approach. First, the output perspective is related with the intra-EU process of policy-formation, focusing on the deliverables of internal political and institutional dynamics that delimit the EU international engagement (= declaratory policy). Second, the outcome perspective shifts attention to the implementation of the output and the deriving behavioural adjustment of the EU. It refers to the EU international activation along the output lines and captures how the EU takes this output to the international level (= operational policy). This paper aims to provide academic added value for the study of EU driven interregionalism towards Latin America. In addition, this paper also aims to contribute to the study of EU foreign policy analysis and the study of regionalism and regional governance/cooperation in the domain of science, technology and higher education. Finally, it also hopes to provide useful insights for policy purposes in order to allow for a potential (re-) definition of effective EU external action in this (increasingly) promising area of (regional) governance in Latin America and its dealings with its European counterpart(s).

Outline of the paper

The paper proceeds as following. After providing a thorough overview of what science diplomacy exactly entails and how its different facets are interrelated, section one provides a comprehensive overview of the EU's science diplomacy approach which can be traced back to the early days of the European Community itself. The second section then provides a comprehensive account of EU-Latin American cooperation in the domain of science, higher education and innovation. As will be shown, this policy area has been high on the interregional agenda, both from a declaratory as well as operational point of view. However, a more detailed analysis of the 'operationalisation' of the EU's strategies and objectives also shows that the EU does not fully achieve its pre-set goals as large amounts of EU funding and cooperation projects seem to be only reaching few Latin American countries and specific institutions thereof. Further exploring the impact of the EU's approach in science, higher education and innovation collaboration with Latin America, section three argues that both from an effectiveness and efficiency perspective, various limitations currently exist to be able to call the EU's approach a 'successful' one. Therefore, the overall message in the concluding remarks section is one of mixed results for the EU's interregional science diplomacy approach towards Latin America. Therefore, the overall message in the concluding remarks section is one of mixed results for the EU's interregional science diplomacy approach towards Latin America.

Part one: on EU science diplomacy

> *"Science Diplomacy can light the way, where other kinds of politics and diplomacy have failed"*
>
> Carlos Moedas, EU Commissioner for Science, Technology and Innovation Policy (Kelly, 2015)

Nascence of EU Science Diplomacy

The practice of European science diplomacy is as old as the EU itself. According to various historians, it even precedes the Treaty of Rome, as a small group of determined scientists began calling for cooperation among Europe's scientific communities right after World War II (Krige & Guzetti, 2009; Moedas, 2016). As many high-level scientists had left Western Europe during the World War to pursue their careers elsewhere, Europe was in need for cross-border collaboration in order to pool resources and knowledge and to allow for new research and innovation to take place (Banchoff, 2002). Yet, it was not until 1954, with the creation of CERN, the European Organisation for Nuclear Research, when these early ideas became materialised. By signing the constitutive CERN treaty, twelve European nations signed on to promote the unifying power of science, both ideologically and pragmatically—bringing scientists together from countries that had been at war less than a decade earlier (CERN, 2017; Moedas, 2016). When CERN achieved its first historical 'beam' in 2008, more than ten thousand people from over hundred countries had worked to design and build CERN's most prestigious 'Large Hadron Collider'. Over the years, CERN became a hub of some of the most exciting frontier research in particle physics and as CERN's influence - scientifically and politically- has become global, it can therefore be aptly labelled a best practice for EU Science Diplomacy (Moedas, 2016). In addition to CERN, various other EU science diplomacy initiatives emerged overtime such as the European Space Research Organisation which started in 1962 at the initiative of a small group of scientists from ten different European countries and which has now become an "important go-between for the Chinese and U.S. space agencies" (ESA, 2017; Moedas, 2016, p.2). EU science diplomacy was also supplemented through the more recently created European Research Area (ERA), which started off as a project to restructure European research by "improving the coordination of national research activities" and has now emerged to "develop a unified research area open to the world (…) to collectively address grand challenges such as population ageing, energy security, mobility, and environmental degradation" (European Commission, 2007, p.2). In a similar vein, the European Higher Education Area (EHEA) and the Bologna process were initially European-oriented, but now include non-EU (associate) partner countries and organisations which allow European students to travel around the world for a short to medium term study stay (and to a certain extent also the other way around).

The EU and Science Diplomacy Today

Competence and main objectives

Today, the EU's competence in science diplomacy needs to be seen as a shared (EU and Member States) responsibility as there is no legal exclusive competence for a single European Science, higher education and innovation policy

foreseen in the European Treaties. As such, under article 4(3) TFEU, research, higher education and technological development are seen as a shared competence in which the EU can carry out activities, but Member States can also exercise competences in parallel (Prange- Gstöhl, 2010). As to the external aspects of science diplomacy, article 180(b) TFEU clearly states that the EU will carry out the promotion of science diplomacy with third countries while complementing that of the Member States (Houët, 2014). The EU has developed a comprehensive international science, higher education and innovation cooperation policy over the past decades. A milestone was achieved in 2008, when the European Commission adopted a 'Strategic European Framework for International Science and Technology Cooperation' and established a European 'Strategic Forum for International S&T Cooperation' (SFIC) with the objective "to facilitate (…) the international dimension of ERA" (European Commission, 2008, p.7). Arguably the most important EU Communication listing the EU's science diplomacy objectives is the 2012 Communication entitled 'Enhancing and focusing EU international cooperation in research and innovation: a strategic approach' (European Commission, 2012a, p.4). In this communication, three core objectives for international cooperation with non-Member States are outlined:

(i) Strengthening the Union's excellence and attractiveness in research and innovation as well as its economic and industrial competitiveness;

(ii) Tackling global societal challenges; and

(iii) Supporting the Union's external policies.

The communication also states that cooperation in research and innovation will make use of science diplomacy to attain *soft power* and improve relations with third countries (European Commission, 2012a, p.6). In the same communication, it is also clearly stated that such international cooperation should support the EU's external policies by coordinating closely with enlargement, neighbourhood, trade and its Common Foreign and Security Policy (CFSP). As such, science diplomacy needs to be used as an instrument of *soft power* "and as a mechanism for improving relations with key countries and regions" (European Commission, 2012a, p.7). A similar point of view is expressed in European Commission Communication of 2014c (p.2), where it is stressed that further efforts need to be made in addressing the external dimension of Research and Innovation policy. In addition, the EU has also adopted a number of important policy statements which corroborate its desire to be an effective leader in the realm of science diplomacy (Van Langenhove, 2017); see for example the European Commission report 'The Future of Europe is Science: A Report of the President's Science and Technology Advisory Council (STAC) (October 2014a)' and European Commission (2014b) 'Preparatory Action. Culture in EU External Relations: Engaging the World: Towards Global Cultural Citizenship'. Finally, in a speech delivered at the European Institute in Washington on 1 June 2015, the incumbent Commissioner for Science, Research and Innovation eloquently argued that he wants *"science diplomacy to play a leading role in our global outreach for its uniting power"* (Moedas, 2015, p.2). In that same speech, he also compared science diplomacy to a torch that can

"light the way, where other kinds of politics and diplomacy have failed" (Ibid, p.3).

The Commission published, along with the 2014 report on the strategy, 11 multi-annual roadmaps (MARs) for scientific cooperation with industrialised countries (Canada, South Korea, USA, Japan); emerging scientific powers (Brazil, Russia, India, China, South Africa); and the ENP countries in two regional groups (Eastern Partnership and Southern Mediterranean) (Reillon, 2015, p.3). Each roadmap presents the state of cooperation with the EU, and defines thematic priorities for future cooperation in research and innovation activities. The science diplomacy aspect of this cooperation is emphasised at EU level to facilitate interactions with third countries, as well as to increase soft power. Hence, scientific cooperation helps to maintain or establish links with targeted countries where other diplomatic options may have been relatively unsuccessful (Reillon, 2015, p.3).

Targeted third countries	Objectives
EFTA countries and EU enlargement countries	Integration into the ERA
Countries covered by the European Neighbourhood Policy (ENP)	Develop a 'Common Knowledge and Innovation Space'
Industrial countries and emerging economies	Maintain EU competitiveness
Developing countries	Complement EU external policies

Table 1: EU objectives in scientific cooperation with targeted third countries, source: European Parliament (2015)

Main Actors

In order to focus on the main players in scientific cooperation with third countries at EU-level, one must first identify the European Commission and more specifically its Directorate-General for Research and Innovation (DG RTD), Directorate-General for International Cooperation (DG DEV), and Directorate-General Education and Culture (DG EAC). Together, these three directorates promote and facilitate coherent and strategic development of EU international policy in science, higher education and innovation (cooperation) (EU-LAC Foundation, 2017b). On a more strategic base, the work of these three DG's is complemented by that of the European External Action Service (EEAS). Within the Council, a specific high-level group has also been created in 2008 to oversee the Commission's work in this policy area. It is called "Strategic Forum for International Science and Technology Cooperation (SFIC)" and features as a dedicated configuration of the European Research Area and Innovation Committee (ERAC), which advises the Council and the Commission on all issues pertaining to science, higher education and innovation (European Research Area and Innovation Committee, 2017).

Finally, in this policy area, parliamentary interaction and cooperation is fundamental. As will become clear in the next section, it is particularly relevant in shaping EU-LAC relations in this policy area. As such, the Euro-Latin American Parliamentary Assembly (EuroLat) meets whenever there is a EU-CELAC summit. It is composed of 150 members: 75 from the European Parliament and 75 from Latin American parliaments including the Latin American Parliament; the Andean

Parliament; the Central American Parliament; the Mercosur Parliament; the Mexican Congress, and the Chilean Congress. In addition, the European Parliament also entertains various inter-parliamentary cooperation schemes with other regions around the world such as the EP-PAP parliamentary summit (European Parliament – Pan African Parliament), and the Asia-Europe Parliamentary dialogue in which higher education, research and innovation cooperation is also addressed.

Tools for an Effective EU Science Diplomacy

Operational tools for science diplomacy are policy instruments used to put science diplomacy into practice (Van Langenhove, 2017). There are various kinds of operational tools the EU has at its disposal to promote further cooperation in the area of science, higher education and innovation.

International Agreements

Since 1994, the EU has signed international agreements for scientific and technological cooperation with more than 20 countries (Boers, 2017). These agreements offer a framework for scientific cooperation between the EU and third countries. DG RTD is the executive agent implementing the agreements on the EU side. The activities promoted by the agreements range from participation in joint projects, to the organisation of seminars, exchanges of/for researchers, and sharing research facilities. The agreements establish steering committees (often called "S&T advisory boards"), usually in charge of defining priorities for cooperation, reporting annually on activities and reviewing the agreement in advance of its renewal (Van Langenhove, 2017).

EU science counsellors and officers

To strengthen scientific cooperation with third countries, the EU has also developed a network of science counsellors and officers. Reporting to DG RTD and working in cooperation with the EEAS, their role encompasses policy analysis: gathering and analysis of relevant information on science and technology policy and activities; policy development: contributing to EU policy development; promoting EU policy objectives; identifying opportunities for cooperation; supporting the implementation of bilateral agreements; representation and communication: establishing connections and networks with stakeholders; promoting Horizon 2020 and other activities of DG RTD and promoting cooperation between EU Member States' counsellors in the host country European Parliament, 2015, p.5).

Participation in the framework programme for research and innovation (i.e. Horizon 2020) and higher education (i.e. Erasmus+)

From an operational viewpoint, scientific cooperation with third countries is also implemented though cooperation schemes under the umbrella of the framework programmes for research and innovation, currently Horizon 2020. However, institutions from some high-income countries (including Mexico and Brazil) cannot receive EU funds for their participation in collaborative projects unless their contribution is recognised as essential to the research project (European Commission, 2016a).

Student, staff and researcher mobility schemes

At the individual level, specific schemes support international mobility for non-EU researchers. A European Research Council grant is available to re-

searchers, provided they spend at least half of the grant duration in the EU or an associated country. Marie Skłodowska-Curie Individual Fellowships are also open to individual (PhD) researchers, regardless of their nationality, allowing them to conduct research projects in the EU (European Parliament, 2015). The Research and Innovation Staff Exchange scheme (RISE) also promotes researcher mobility between Member States and third countries. Through Erasmus+ and Erasmus Mundus programmes, students can spend parts of their study abroad.

Cooperation and investment in shared research Infrastructures

Cooperation and investment in shared research infrastructures is a rather new, yet increasingly important pillar in the implementation of the Common Research Area (CRA) and its external dimension (see below). Central here is the joint development of and access to Research Infrastructures across the globe. EULALINK, for example, was established in June 2015 to lay a transatlantic optic fibre cable from Portugal to Brazil with extensions to nearly all South American countries in order to allow for the development of a high-capacity data connection between the EU and Latin America (see below).

Capacity building mechanisms and tools

Finally, there are so-called support tools for Science Diplomacy which aim to promote and/or facilitate Science Diplomacy activities. These tools include (Van Langenhove, 2017, p.2):

- Training activities regarding science diplomacy. Audiences can be either diplomats or scientists;
- Awareness building activities geared towards scientists or diplomats;
- Dialogue and consultation platforms.

Part two: EU-Latin America: Science high on the interregional agenda

In order to critically analyse the EU's interregional approach in cooperating with Latin America in the domain of science, higher education and innovation, this paper differentiates between the EU's declaratory policy (output) and operational policy (outcome).

Declaratory policy and drivers for an EU interregional approach

The EU's declaratory policy, or policy output, can be further defined as declaratory policy related to the external aspects of the European Research and European Higher Education Areas (ERA and EHEA) as well as declaratory policy specifically targeted at cooperation with Latin America. The European Higher Education Area and the European Research Area were created with the same underlying rationale as articulated in the Lisbon strategy, i.e. transforming the European Union into the most dynamic knowledge-based/ -driven competitive economy of the world by enhancing European Higher Education and stimulating European research excellence (European Commission, 2010). The principle conjunctions and core themes which are at the centre of EHEA and ERA are those of academic quality, mobility, diversity and competitiveness (Portugués, 2006). By means of adopting a system of degree comparison; reforming the structure of cycles; establishing a common credit system (ECTS); mobility mechanisms (in-

cluding Erasmus+), cooperating in the area of accreditation; and promoting higher education from a European perspective, more than 40 European countries currently closely collaborate through the so-called Bologna process (Zgaga, 2006). In 2007 and 2009, two constitutive strategies were produced to also provide direction for "EHEA in a global setting" as member states believed EHEA should "not exclude any region or country of the world " (EHEA, 2007, p.2), and that EHEA should be promoted as "an attraction to enhance its world-wide attractiveness and competitiveness in the field of Higher Education" (EHEA, 2009, p.6). For this purpose, five areas of work were defined (EHEA, 2009):

1. Improve information on the EHEA;
2. Promote European Higher Education to improve its attractiveness and competitiveness;
3. Strengthen partnership-based cooperation;
4. Intensify political dialogue;
5. Encourage recognition of qualifications.

Since December 2015, an Advisory Group on EHEA international cooperation has been created which is instructed to monitor and follow-up on the activities related to the international proliferation and outreach of EHEA and to come up with a "roadmap and engage in a policy dialogue with non EHEA partners in order to carry out a cooperation strategy based on shared issues, identifying concrete issues and topics to discuss with non-EHEA members" (EHEA, 2016, p.2). In all constitutive EHEA external dimension strategy documents, Latin America, and more specifically the EU-LAC interregional dialogue is explicitly mentioned as one (often mentioned as first) of the most important external dialogues and cooperation frameworks to develop further (EHEA, 2009, p.13). In fact, Latin America is often identified as the region of priority interest for promoting the EHEA and encouraging recognition of qualifications through so-called "twinning" projects (Zgaga, 2006).

The European Research Area in its turn has at its core to implement a common European investigation market; the restructuring of the European research fabric and the promotion of a European research policy (European Commission, 2017a). The 2012 Communication prescribes that the European Research Area (ERA) "should lead to a significant improvement in Europe's research performance to promote growth and job creation, as through ERA, the Union and its Member States will strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address grand challenges" (European Commission, 2012b, p.1). To achieve this goal, five sub-objectives have been defined (European Commission, 2017a):

1. Develop more effective national research systems;
2. Establish optimal transnational co-operation and competition schemes on common research agendas, grand challenges and infrastructures;
3. Establish an open labour market for researchers, facilitating mobility, supporting training and ensuring attractive careers;
4. Encourage gender diversity to foster science excellence and relevance all across Europe;
5. To allow for effective circulation and transfer of scientific knowledge to guarantee access to and uptake of knowledge by all.

The main instruments used to achieve this goal are Research and Innovation Framework Programmes (currently Horizon 2020); the implementation of centres of excellence, electronic coordination networks, virtual laboratories; scientific and technological cooperation in an intergovernmental framework (e.g. European Space Agency) and other initiatives such as COST (European Scientific and Technical Research programmes) and EUREKA (European innovative research and development projects). Like the EHEA, the ERA has an important external dimension as detailed in the European Commission's communication of 2001 titled "The international dimension of the European Research Area" (European Commission, 2011). This communication provides concrete guidelines for a EU foreign policy in the field of research as well as the usage of foreign policy tools and methods to accelerate the successful construction of the European Research Area. As such, the strategy lays the groundwork for a proper EU diplomacy *for* science approach. Three specific objectives are listed: (i) the ERA has to become attractive for the best scientists in the world (beyond the EU); (ii) The EU's foreign policy has to enable European researchers and industrialists to share knowledge and technology with other continents, countries and cultures; (iii) as well as to allow for "the necessary access to the fields of experimentation" for the EU (European Commission, 2011, p.2). The latter seems to be particularly important for the EU's dealings with Latin America, as one of today's most successful cases in this regard is the European Southern Observatory organisation, which has various satellites placed in strategic locations in Chile, allowing it to be the world's most productive astronomical observatory (European Space Agency, 2017).

Next to these general strategies and policy documents in which Latin America features as a key partner in the EU's quest for international leadership in the domain of science, higher education and innovation, the EU has also developed various declaratory policies solely focused on Latin America. In fact, science and academic diplomacy has been an important chapter of the EU-Latin America interregional relations since the very beginning of the interregional partnership, and a key feature of every high-level summit agenda.

In preparation for the first EU-LAC summit in Rio, 1999, a Senior Officials' Meeting (SOM) was held on 5-6 June in Lisbon. In this meeting, participants agreed to, first, establish a policy dialogue in science and technology, and, second, to promote joint research and technological development actions which support the "sustainable and equitable development" of both Europe and Latin America (EEAS, 2017). On 13-14 December 2001, another science and technology SOM was held in Bruges, Belgium. This meeting produced a 'Shared Vision on the Societal role of Research and Technology Development' and laid down the foundations for today's EU-CELAC cooperation in the domain of science, technology, higher education and innovation (EU-LAC SOM, 2001). The joint vision identified four main objectives for a region-to-region cooperation in this policy area (EU-LAC SOM, 2001):

- Endeavour to create a specific space for EU-LAC Science and Technology Cooperation and raising its visibility in the Research Technology and Development community of both regions;

- Promote the creation of performing instruments for the coordination of bi-regional S&T Cooperation in the following specific domains: health and quality of life; information society; competitive growth in the global environment; sustainable development and urbanisation; cultural heritage; and cross-cutting issues, e.g. establishing and strengthening innovation capacities; integrating production chains; fostering interactions between universities & research centres with the private sector; boosting the education & training of human resources including transnational and intersectoral mobility, etc.;
- Jointly evolve a common approach to identify priority domains for S&T Cooperation in the medium and long terms; as well as identify the procedures which ensure a mutually beneficial management, financing, monitoring and evaluation of the agreed cooperation activities;
- Organise a facilitation & coordination entity to promote synergistic articulation of S&T Cooperation with other bi-regional initiatives.

The 1999 Rio Summit determined that one of the core components of the bi-regional relationship should also be education, in all its aspects and at all levels (point 5). In fact, especially for Latin America, education is "a special challenge, in which global outreach and interaction would be beneficial to improve the quality of education institutions and offerings" (Eurolat, 1999, p.8). Soon afterwards, at a joint meeting of all the ministers of science, education and innovation in March 2002 in Brasília, representatives from the EU and the LAC countries agreed to an Action Plan for science & higher education cooperation. This Action Plan is built on the Shared Vision formulated in Bruges, reiterating the four purposes of interregional scientific cooperation identified by the participants. It also created the Alfa and Alba programs (see below), and referred to the Bologna process and Tuning projects with Enlargement/neighbouring countries as best practices to be considered for the EU-LAC region as well.

The second EU-LAC summit was held in Madrid on 17 May 2002 and endorsed both the Shared Vision and the Action Plan. At the third EU-LAC summit in Guadalajara, Mexico on 28-29 May 2004, the development of an 'EU-LAC Knowledge Area' was mentioned for the first time as the core objective of the interregional relationship (Council of the European Union, 2004). As such, cooperation in science and higher education became the articulating axis of the EU-LAC Strategic Agenda 2005-2008 and the accompanying Action Plan for the construction of Common Higher Education Space with a 'horizon to 2015' (European Commission, 2005). It included aspects of academic mobility and exchange, quality assessment, visibility and higher education structuring. The overall objective was (Council of the European Union, 2004, p.14):

That the future EU-LAC Knowledge Area should be built on the results of the successful science and technology bi-regional dialogue and include reinforcement of cooperation in science and technology, higher education and information and communication technologies. Considering the importance of science and technology for the social and economic development of our countries, and guided by the outcome of the

ministerial meetings and the bi-regional working group on scientific and technological cooperation, we agree to launch a partnership in science and technology with a view to including Latin America and the Caribbean as a target region in the EU Framework Programs in these sectors, thereby contributing to deepening and developing bi-regional links and encouraging mutual participation in research programs.

At the fourth EU-LAC summit on 1-3 February 2006 in Vienna, the objective of creating an EU-LAC 'Common Area of Higher Education' was established (Council of the European Union, 2006). The political leaders of both regions instructed the SOM and ministers of higher education to "promote the design, implementation and monitoring of joint research and development, mobility, innovation and public awareness of science activities in agreed areas of mutual interest for both regions, with a view to encouraging mutual participation in research activities such as the 7th Framework Program and other bi- and multilateral programs" (Council of the European Union, 2006, p.18). During the fifth EU-LAC summit in Lima, Peru, on 16-17 May 2008, not much attention was paid to cooperation in the area of science diplomacy and higher education cooperation. Apart from the acknowledgement of receipt of the European Commission twenty-page leaflet on successful Scientific and Technological Cooperation including thirteen cases of bi-regional joint research projects, the summit did little more than to reiterate the importance of collaboration in this regard (Anderson et al., 2016).

This is different from the sixth EU-LAC summit held on 14 May 2010 in Madrid, which had as its main theme 'technology and innovation for sustainable development and social inclusion' and allowed for a considerable uptake and acceleration of the EU-CELAC cooperation in science, technology, higher education and innovation (Council of the European Union, 2010). In fact, many of todays projects, working groups and underlying rationale/objectives are a direct result of the negotiations and decisions made at the EU-LAC summit in Madrid 2010. Crucially, this summit saw the adoption of a text for the establishment of an EU-LAC Joint Initiative for Research and Innovation (JIRI). Since that time the JIRI has been the subject of annual bi-regional SOMs. These meetings have established five working groups to enhance bi-regional science, higher education and innovation cooperation and to mobilise national, regional and bi-regional funding instruments, projects and platforms enabling such cooperation (see below). The Madrid EU-LAC summit also led to the adoption of an Action Plan geared "towards a new stage in the bi-regional partnership: innovation and technology for sustainable development and social inclusion" of which the first priority area is science, research, innovation and technology cooperation, and the fifth related to higher education (Council of the European Union, 2010). Here, the following two overall objectives have been proposed which are still in place today (Council of the European Union, 2010, p.2 and p.9):

- Develop a EU-CELAC knowledge area through: "i) improving cooperation in research and innovation; ii) strengthening scientific and technological capacities, and infrastructures; iii) enabling sustainable research, innovation and knowledge sharing

taking into account the contribution of ancestral and traditional knowledge; iv) boosting the use of new and existing technologies and technology development and transfer underpinning sustainable socio-economic development; and v) fostering cooperation between both regions as regards the digital-economy and the reduction of the digital divide for improving competitiveness while making social inclusion a cross-cutting issue".

- In regards to higher education, the objective is to "give a new impetus to EU–CELAC cooperation and to support inclusive development of higher education sector, including equitable access and quality, by facilitating the sharing of knowledge and technology transfers through institutional strengthening, capacity building actions and mobility of students, researchers, experts, academic and administrative staff".

At the proceeding high-level summits in January 2013 (Santiago), and July 2015 (Brussels), the Madrid objectives and actions plans were reiterated. In addition, three novel initiatives are launched, namely the setting-up and implementation of a Joint Initiative on Research and Innovation (JIRI), the creation of an EU-CELAC Knowledge Area and the establishment of 'Academic Summits', to be held in parallel to EU-CELAC biannual summits of the heads of state and governments (Council of the European Union, 2013). The EU-LAC Academic Summits arose as a joint initiative of a group of universities in both regions, starting with a seminar organised at the Centre Latin America for Relations with Europe (CELARE) in Santiago, Chile (see below for full details). At the latest summit, both regions also called for moving towards a 'Common Research Area' instead of a Common Knowledge Area (Council of the European Union, 2015). The following figure provides an overview of the differences in approach and strategy:

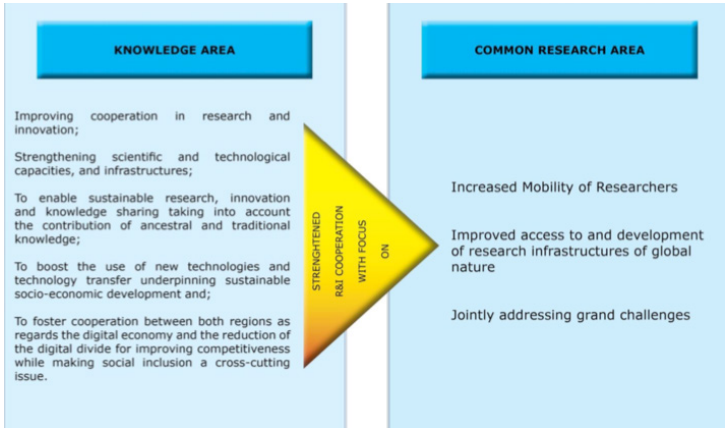

Figure 1: From EU-CELAC Knowledge Area to Common Research Area. Source: European Commission (2016)

Finally, the Foresight Report "Exploration of the future bi regional cooperation" provides a longer term perspective on how both regions see the 'Common Research/Knowledge Area' to be established and functional. Initiated in 2014 by the EU-CELAC SOM, and after a consultation process involving a wide array of bi-regional stakeholders, a "Scenario-VISION 2030" has been constructed and approved by the 2016 EU-CELAC SOM in Brussels. According to the exercise, it is foreseen that bi-regional cooperation in 2030 will take place under a context characterised by a "large number of growing global economic, societal, social and environmental challenges, including the unprecedented acceleration in the production of knowledge" (Aguirre-Bastos, Bermudez & Quiel, 2015, p.47). Underpinned by these provisions, inter-

regional cooperation strives to "develop a collective intelligence capacity under new forms of organisations and processes, different than those of the past" (Aguirre-Bastos, Bermudez & Quiel, 2015, p.47). By 2030, the main vision of the EU-CELAC bi-regional cooperation is that it takes place on "equal grounds and the process is overcoming weaknesses at the national and interregional levels that include the heterogeneous policy and strategic approaches to STI and overcoming the rhetoric on the importance of STI for development by matching it with the resolve to act" (Aguirre-Bastos, Bermudez & Quiel, 2015, p.48).

The above mentioned strategies and objectives are further defined and operationalised in 2-yearly EU-CELAC Action Plans, and overseen by the EU-CELAC Joint Initiative on Research and Innovation (JIRI) committee. However, as JIRI is not a separate legal entity with its own administration and resources, it is the European Commission's DG RTD that oversees the implementation of the Action Plan together with the country in the presidency of CELAC (European Commission, 2016a). What follows is a critical assessment whether or not this impressive amount of policy objectives and strategies have been translated into a coherent set of operational policy measures, and whether or not the EU acts upon its science diplomacy statements and premises.

II. Operational Policy

The analysis below provides a thorough overview of how the above mentioned shared objectives, strategies and action plans have been translated into a series of specific projects and cooperation schemes. Yet, and acknowledging most of the cooperation efforts situated at a project or programme level and financed by funding schemes of DG RTD (Horizon 2020) and DG EAC (Alfa, Erasmus+), the EU has also created fora for academic dialogue and exchange of information and best practices with Latin America. The following section will first provide an overview of these academic dialogues and exchange of information platforms, before moving on to the analysis of projects and cooperation schemes managed by the European Commission.

A. Foreign Policy Engagement: High Level Dialogue and Cooperation Platforms

i. Summitry – at presidential, ministerial and senior official levels

Science diplomacy has been high on the EU-CELAC interregional summitry level from the very beginning. As became clear from the description above, cooperation in the area of science, higher education and innovation has featured on every biennial meeting of the EU-CELAC heads of state and government. In fact, at the latest summit, it was even listed as the first key area of interregional cooperation. In addition to the meetings of the presidents and heads of states of both regions, science diplomacy is also addressed at annual ministerial meetings. Ever since the first meeting of minsters of science and education in Paris (2000), ministerial conferences have been held to prepare and follow up on the EU-CELAC biannual meetings. Yet, whereas these two fora are imminently political in nature, another layer of dialogue has

been added: Senior Official Meetings (SOM) with designated representatives from both regions, as the framework to implement the action plan of JIRI (Joint Initiative for Research and Innovation). As stipulated in the Madrid action plan, the SOM has to "establish regular bi-regional dialogue on science, research, technology and innovation to consolidate EU-CELAC cooperation, and to update common priorities, encourage mutual policy learning and ensure the proper implementation and effectiveness of cooperation instruments", and according to annual roadmaps, also play a "central role in stimulating and monitoring EU-CELAC R&I cooperation" (ALCUE-NET, 2016, p.3).

ii. SOM working groups

In turn, SOM has also established five working groups to further enhance interregional science, higher education and innovation cooperation, and to mobilise national, regional and interregional funding instruments, projects and platforms enabling such cooperation (Aguirre-Bastos, Bermudez & Quiel, 2015). In each SOM Working Group (WG), co-led by a country from each region, common objectives have been defined as well as activities to combine national, regional and bi-regional instruments. WGs report yearly to the SOM, on the results of their deliberations and suggest possible paths for improved cooperation. These working groups deal with the bio-economy, including food security (co-led by Argentina and France); renewable energies (co-led by Mexico and Spain); biodiversity and climate change (co-led by Colombia and France); ICT for meeting societal challenges (co-led by Chile and Finland) and cross-cutting issues on "Good practices, Finance & Researchers' Careers" (co-led by Mexico and Portugal) (ALCUE-NET, 2016).

iii. Academic summits

In addition to the politico-bureaucratic cooperation fora as described above, EU-CELAC also includes a rather unique interregional cooperation scheme: the so-called "Academic Summits". The 1st Academic Summit was held in Santiago (Chile) in January 2013, where universities, higher education institutes, research centres and academics of the CELAC region and the EU gathered to analyse the current status of university cooperation. The central idea is to accompany the process of the interregional strategic partnership and creation of a Common Research and Higher Education space (the EU-CELAC Knowledge area), by means of a more bottom-up approach involving important stakeholders in this area such as universities, researchers, students etc. It is a new, participatory and open process that is unique to the EU-LAC interregional partnership, and includes more than 200 institutions and 500 academics, from rectors to professors to research graduates and students as well (Miranda, 2014). In the Santiago Statement, the heads of state and governments expressed their strong will for developing bi-regional cooperation in higher education and proposed to the heads of states, governments and other relevant institutions of both regions to develop the Euro-Latin American space for higher education, science, technology and innovation, promoting and strengthening the integration of Higher Education systems and scientific research and innovation systems (CELAC, 2013).

These objectives were further reinforced by the 2nd Academic Summit EU-CELAC held at Brussels in June 2015. For every academic summit, there are preparatory meetings held, and as of 2017, four reflection groups are established to permanently follow-up on the proceedings of the academic summits (Americasportal, 2017):

1. *Higher Education*, coordinated by Francisco Aldecoa (Complutense University, Madrid) and Patricio Conejeros (University of Buenos Aires).
2. *Science, Technology and Innovation*, coordinated by Michiel Baud (CEDLA/University of Amsterdam) and Nielsen de Paula Pires (Vice- rector of the Federal University of Latin-American Integration, Brazil).
3. *Links with Society*, coordinated by Celso Garrido (Metropolitan Autonomous University of Mexico) and Florence Pinot (ESCP Europe/ CERALE, France).
4. *Links with Public Policies*, coordinated by Iordan Barbulescu (ISLA, National University of Political Studies and Public Administration, Romania), Christian Parker (University of Santiago de Chile) and Marco Moreno (Central University of Chile).

iv. Networks

Finally, as a SOM recommendation, several networking initiatives and platform projects have been created to support and implement the work done by the four SOM WGs (ALCUE-NET, 2016). In this context, the ALCUE NET project is the main support platform of SOM Thematic WGs in the areas of Bio-economy, ICT, Biodiversity & Climate Change and Renewable energies. The WG on Health is supported by the EULAC-Health project. This structure is complemented by the ERANet-LAC project, supporting the Cross Cutting WG, and manages joint calls for projects in areas of common interest and promotes the setting-up of a funding agencies' platform, to be created in order to provide long-term sustainability to cooperation efforts. In addition to the ERANet-LAC and ALCUE NET network projects, there is also EULARINET, the EU-LAC Foundation, ENSOCIO-LA, the EU-LAC Innovation Platform, LEADERSHIP, ENLACE, and EUCARINET[1]. EULARINET aims to foster European and Latin American research and innovation networks, whereas ENSOCIO-LA is an EU-funded Coordination & Support Action that aims to establish "sustainable and integrated research and innovation cooperation between the EU and Latin American Countries in the environmental field, namely in climate change, resource efficiency and raw materials" (ENSOCIO-LA, 2017). The EU-LAC Foundation has been operational since 2011 with the purpose to strengthen the interregional strategic partnership between the EU and the LAC countries by (EU-LAC Foundation, 2017a):

- Connecting the intergovernmental process with the business, academic, and social sector, as well as, in a broad and general manner, the civil society of both regions;
- Promoting the development of a joint and evolving global vision and a shared strategy in both regions;
- Making the bi-regional strategic partnership more dynamic by giving impulses to the

formulation and implementation of policies and agendas;

- Disseminating knowledge to improve the mutual understanding and visibility of both regions and the bi-regional partnership itself.

The EU-LAC innovation portal is hosted by EMF, the Forum of e-Excellence, a non-profit, private organisation which supports the internationalisation of European innovative SMEs in ICT, and fosters the cross-stakeholder approach for a mutually beneficial dialogue on ICT R&D between the two regions (Americasportal, 2017). LEADERSHIP, or the Latin America and Europe ICT Research & Innovation Partnership, is also to "support the evolving dialogues on EU-LAC cooperation in ICT" whereas ENLACE or Enhancing Scientific Cooperation between the European Union and Central America, was a 48-month project funded by the EU under FP7 to support the interregional dialogue between the EU and the Central American states (Leadership, 2017). Finally, EUCARINET is a four-year INCONET Coordination Action whose main goal is to "strengthen bi-regional sustainable dialogue on Science and Technology between Europe and the Caribbean" (Cordis, 2017).

B. Academic cooperation

The considerable amount of (high-level) dialogues and cooperation platforms is further complemented by academic cooperation mechanisms and tools which are initiated and supported by the EU. In fact, most of the academic cooperation efforts are to be situated at a project or programme level, and financed by funding schemes of DG RTD and DG EAC. It is the result of EU general science, higher education and innovation outreach activities, such as Erasmus+ and Horizon 2020 (see below), and further complemented by specific activities which are solely oriented towards Latin America. The latter are also the consequence of specific cooperation agreements signed by the EU and four Latin American countries: Argentina, Brazil, Chile, and Mexico, which further boost their share in overall third-country academic cooperation efforts of the EU. Today, there are more than 100 projects and programmes operational in the area of EU-CELAC science, higher education and innovation cooperation. What follows is a brief overview of the three areas of cooperation in which most of these projects and programmes are situated: (1) student and staff mobility; (2) participation in framework programmes; and (3) capacity building initiatives.

i. Student & staff mobility

An important aspect of reaching academic and scientific excellence is to be exposed to an international environment, and the ability to interact with peer students/teaching staff/researchers from different cultures and backgrounds. In order to stimulate such an academic exchange, various mobility programs and schemes have been established over the last decade enabling EU-CELAC scholars and staff to work together and spend valuable research/learning time abroad. For students and higher education staff, such a mobility is organised via the Erasmus(+) credit mobility and Erasmus Mundus partnerships/joint masters programs. It is estimated that between 2007 and 2013 with a budget of EUR 1,250 million, 6780 students and academics from almost 220 different Latin Ameri-

can higher education institutions (HEIs) travelled to Europe (European Commission, 2015c). Students from Latin America are mainly undergraduates (more than a third of the total flows), except in countries like Argentina or Cuba, where participants are mainly doctoral candidates. In addition, over 2,500 students or doctoral candidates from Latin American countries were awarded scholarships or fellowships by Erasmus Mundus joint master and doctoral programs between 2004 and 2014. Geographically speaking, only two countries Brazil (30%) and Argentina (13%), represent almost half (43%) of the LA regional mobility's implemented during the period of reference. Looking at the list of awarded institutions, it also appears that not less than a 1/3rd of all mobility and funding went to one of the following ten institutions:

Ranking	Organisation Name	Country	Organisation participations	EU contribution awarded to participants (EUR thousand)
1	Universidad Nacional Autonoma de Mexico	Mexico	21	1 308
2	Universidade de Sao Paulo	Brazil	24	1 304
3	Consejo Nacional de Investigaciones Cientificas y Tecnicas	Argentina	20	1 161
4	Universidade Federal do Rio de Janeiro	Brazil	17	1 028
5	Ministerio da Ciencia e Tecnologia	Brazil	3	884
6	Pontificia Universidad Catolica de Chile	Chile	13	843
7	Universidade Federal do Rio Grande do Sul	Brazil	10	839
8	Universidad de Buenos Aires	Argentina	11	708
9	Benemerita Universidad Autonoma de Puebla	Mexico	2	679
10	Comision Nacional de Energia Atomica	Argentina	5	504
				TOTAL: 9 258

Table 2: Top 10 Latin American institutions receiving close to 1/3rd of all EU science and higher education funding, source: European Commission (2015c)

In light of mobility of researchers, especially the Marie Skłodowska-Curie actions (MSCA) and framework programmes (see below) allow researchers to go and work (temporary) across the Atlantic. The involvement of CELAC organisations in the MSCA is significant as well (Miranda, 2012). From 2007 onwards, more than 150 distinct Latin American organisations have participated over 400 times in 205 Marie Curie projects, Brazilian organisations being the most active (almost half of the total figure, with 187 participations), followed by Argentina (92) and Mexico (71) (European Commission, 2015c). Brazilian organisations received roughly 45% of the total EUR 25 million from the EU. In total, around 3700 researchers have been awarded fellowships or benefitted from a short secondment to a European organisation. Analysing the scientific disciplines in which this mobility is established, it appears that there is a bias towards experimental sciences: Information Science and Engineering projects count for 22% of the total number of LAC organisation participations, and this scientific field is closely followed by Life Sciences (16%), Environment and Geo Sciences (14%), while Social Sciences count for 13% and Economy for only 2% of the total participations (European Commission, 2015c). From the above overviews, it thus seems that the EU has allowed for a significant amount of student, higher education staff and researchers from the CELAC region to spend academic working time in Europe. Yet, whereas there are 33 CELAC countries invited for these mobility schemes, it seems that only three countries are reaping the full benefits of these cooperation opportunities: Brazil, Argentina, and Mexico. Contrasting these figures with the amount of outbound students, HEI staff and researchers towards the United States, it appears that the EU is CELAC's most preferential academic destination: close to 50% of all academic mobility is directed towards the EU whereas only close to 30% is heading for the US (Miranda, 2014). In addition, international students and staff in Lat-

in America originate mostly from the EU. Additionally, as per OECD calculations, not less than 70% of all foreign academics in Latin America are from Europe, whereas only 28% originate from the United States (OECD, 2016).

ii. Participation in framework programs

With the 7th Research Framework Programme (FP7: 2007-2013) international (third-country) cooperation was allowed in all its calls and work programmes. In addition, a specific activity on 'International Cooperation' has been introduced to further support and better coordinate EU Member States' initiatives towards third countries in order to open up the European Research Area (ERA) to participation from other parts of the globe (European Commission, 2012b). Under the FP7 from 2007 to 2014, there were 747 participations of research entities from CELAC receiving over 100 million Euro of EU support in 314 successful projects (European Commission, 2015c). In the Work Program 2011 of FP7 a special focus was also on Latin America and the Caribbean, which sought to boost the interregional scientific cooperation further with particular attention to topics of direct relevance to the JIRI (SOM) working groups. This dynamic is strengthened with the new Horizon 2020 (2014-2020) framework programme, in which Latin America can also participate in various calls and for which several specific international collaboration calls have been reserved for EU-CELAC. Of particular interest is that in the round 2015-2016, calls have been established in regarding EU-CELAC science diplomacy; to direct "focus" on the scientific collaboration (project "EU-LAC FOCUS") and to provide guidance to "analyse the relevance of cultural, science and innovation diplomacy for EU external relations, including towards Latin America" (project "EL-CSID") (Cordis, 2017). In addition, Horizon 2020 also includes various initiatives to establish access to each others' research infrastructures, including by means of a submarine cable linking Latin America and Europe through the "BELLA Network Layout" (Liello, 2014). This cable will ensure a very high-capacity bandwidth for research and education which will for example, make it easier for researchers in Latin America to access the Large Hadron Collider in CERN (Switzerland), and for researchers in Europe to access the Astronomical and Cosmic Ray Observatories in the Atacama Desert (Chile) (European Commission, 2015b). Finally, Horizon 2020 also allows for joint projects which target global challenges by means of increased thematic cooperation. For example, the recently created 'GLOBIS-B - GLOBal Infrastructures for Supporting Biodiversity' research has an overall project objective to "support global cooperation between research infrastructures focused on predicting the biosphere and measuring the indicators of biodiversity change" and includes partners from Europe and Brazil (GLOBIS-B, 2017). In the area of health research, EU-CELAC countries are close partners in combatting global challenges: various shared research projects were created after the Zhika outbreak (i.e. 'ZikAction'), but also other projects exist such as the Global Research Collaboration on Infectious Diseases Preparedness (GloPID- R) and the Global Alliance for Chronic Diseases (GACD).

Just as with academic mobility, it seems that CELAC involvement in framework programmes

is very much dominated by a few countries and academic organisations within those countries. Nonetheless, here too, from a Latin American perspective, international collaboration and international funding possibilities for research (infrastructure) is largely dominated by the EU (Miranda, 2014). It is calculated that 80% of Latin America's international research collaboration projects are funded by, or in collaboration with EU (organisations) in contrast to approximately 20% with the United States. On an institutional level, there are four times more cooperation agreements between EU-LAC universities and research institutes than there are North America-LAC, let al.one with another region (EU-LAC FOCUS, 2017).

iii. Capacity building projects and funds

A third substantial area of EU science diplomacy towards the CELAC region has been related to capacity building and investment in Latin America's 'Academic sector' to increase its overall quality and impact in/for a sustainable society. As detailed in the declaratory policy section above, the EU considers science, higher education and innovation a priority area for regional cooperation with Latin America as a means to stimulate a more balanced and inclusive economic and social development of the region. As a consequence, the EU has made substantial investments in this sector ever since its first regional programmes for CELAC were launched in the early 1990s. It is calculated that for the period 2007 to 2013, up to €556 million investments have been made through regional programs linked to science, higher education and innovation which include @lis II, the Alliance for Information Society, EUROsociAL for social cohesion, URB-AL for urban policy coordination, AL-INVEST IV for enhancing commerce between SMEs, ALFA III on higher education and the Erasmus Mundus External Cooperation Window program, which since 2008 replaces the ALBAN Program in funding high-level scholarships for Latin America (Lima et al., 2014). Yet, by far, the ALFA programmes (1994-2013) and its successor the Erasmus+ programme (2014-2020) have been the most fundamental (funding) programmes aimed at capacity building for the higher education sector (European Commission, 2015c). Three previous phases of ALFA programmes have been implemented from 1994 to 2013 with a total EU contribution of €163 million (European Commission, 2017b). The ALBAN programme was implemented between 2002 and 2010 with an EU contribution of €84 million. The ALFA III programme (2007-2013, EUR 75 million) funded 51 projects related to institutional development and a better relationship/interaction between Higher Education Institutions and society (including local government institutions and the business sector) in Latin America. Projects like UNICA (involving Nicaragua, Mexico, Bolivia, and Colombia) have in particular contributed to a better access to higher education services for people living in remote areas and paid particular attention to vulnerable groups (European University Association, 2015). Also under the current Erasmus+ programme, capacity-building projects may be set up and managed by a consortium of HEIs from Europe in partnership with particular regions of the world, including LAC. These projects can be (EACEA, 2017):

- Joint projects: to help HEIs from partner countries to develop, modernise and disseminate

new curricula, teaching methods or materials, as well as to boost quality assurance and governance of HEIs;

- Structural projects: to develop and reform HEIs and systems in partner countries; to enhance their quality and relevance, promote regional cooperation and increase convergence with international developments in higher education.

The total Erasmus+ budget reserved for Latin America (2014-2020) is €163 million which is expected to fund around 100 capacity building cooperation projects (Herdevall, 2015). Yet, for this funding mechanism, only 18 out of 33 Latin American countries are eligible for funding (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela) (European Commission, 2017b). Finally, various other additional small-scale capacity building projects have been created, such as the PIHE Network (2005-2007) to support EULAC Partnerships for Internationalisation in Higher Education, the ALFA-PUENTES project (2011-2014) to improve the Capacity of University Associations in fostering Latin American Regional Integration, and the EULATIN II project.

Part three: Measuring the impact of the EU's science, higher education and innovation approach towards Latin America

The EU has thus created and managed various cooperation, exchange and mobility projects and organised joint initiatives, high level dialogues and information/best practices mechanisms in order to further its science, higher education and innovation agenda towards Latin America. In this section, the real impact that the EU's declaratory and operational foreign policy might have enabled is analysed, both for Latin America's situation as well as in terms of EU own-set 'goal attainment'. In order to do so, this section thoroughly reviews the EU's (a) effectiveness and (b) efficiency in its cooperation with Latin America on science, higher education and innovation.

A. Effectiveness

In order to measure effectiveness of EU foreign policy action, verifying goal attainment is often used by international relations scholars (Blavoukos, 2014). These goals are listed in various political statements and (shared) visions/agendas, as listed above. However, in the policy area of science, higher education and innovation, the EU has come up with numerous goals and objectives to achieve over the last 15 years. These goals and objectives often overlap (e.g. the Erasmus+ objectives of "achieving higher mobility of higher education institutions' staff and students" as well as "accomplish mobility within joint high-quality study programmes implemented by EU and non-EU universities") but sometimes also (partially) compete with each

other (e.g. objectives related to increasing mobility and long research stays of Latin American scholars in Europe and the objectives related to capacity building of Latin American higher education institutes and tackling the brain drain in -especially developing- Latin American countries). In addition, the way in which the objectives are formulated is in such an abstract and general manner, that it is very difficult *not* to achieve them. In fact, it is very difficult to measure concrete results and achievements as the goals are not time-bound, specific or accurately formulated. Take the example of the Madrid declaration, in which the following two main objectives were put forward:

1. Develop a EU-CELAC knowledge area through: i) improving cooperation in research and innovation; ii) strengthening scientific and technological capacities, and infrastructures; iii) enabling sustainable research, innovation and knowledge sharing (…);

2. Give a new impetus to EU–CELAC cooperation and to support inclusive development of higher education sector, including equitable access and quality, by facilitating the sharing of knowledge and technology transfers through institutional strengthening, capacity building actions and mobility of students, researchers, experts, academic and administrative staff.

Various questions can be posed in this regard: when is "improved cooperation" achieved? What is exactly meant with "strengthening capacities" and when will both parties be satisfied in regards "facilitating the sharing of knowledge and technology transfers"? As these overall objectives have not been further defined and 'operationalized', they have become subject to interpretation and ultimately conflict. In fact, from an EU perspective, in (most) official communication it is argued that the EU has been achieving its goals in this policy area, and has allowed a variety of 'results' to take place[2]. For example, the ALFA programme end evaluation/ assessment has reported positively on achieving the following results:

- New shared technological tools are provided through established networks between HEIs of both regions;
- ALFA III has improved access to higher education for populations living in remote areas and vulnerable groups;
- It has contributed to the construction of a common LA HE area and strengthens regional integration processes as established in the Development Cooperation Instrument (DCI) Regulation;
- The programme has favoured particular connections between public policies and HEIs participating in the programme, which could contribute to the review of education policies;
- It has promoted the connection between universities and the private sector, namely SMEs, through the alignment of curricula with the needs of the local labour market, to promote employability;
- High level of institutionalisation of the processes carried out by the HEIs, with favourable sustainability perspectives;
- It has contributed to the development of new curricula, the modernisation of existing courses, and the introduction of modern

learning, teaching techniques and the dissemination of best practices; (…).

Also from a more *quantitative* perspective, it appears that the EU has been largely successful in this cooperation domain. A variety of numbers and indicators have been used to this end, e.g. number of student/staff mobility (in both directions), amount of framework programme projects (FP7/H2020) established with/for Latin America, quantity of development cooperation/capacity building projects established to support Latin America's higher education system and research infrastructure etc. Yet, what is often missing in these official communications is the *contextualisation* or perspective (the 'larger picture'); a baseline to compare/contrast the figures with and a concrete –mutually agreed upon- target value to be reached in order to be able to proclaim the cooperation as 'successful'. As such, and in line with the recommendations of the Technopolis Group & Manchester Institute of *Innovation Research in an advisory report to the European Commission in this regard, one could think of –as an example- the following four goals and measurable indicators of result*:

1.A EU GOAL: Jointly achieving research excellence

1.B INDICATOR: internationally co-authored papers: benchmarked against e.g. total domestic papers, world total of internationally co-authored papers shares of papers in international leading scientific journals etc.

2.A EU GOAL: Attracting/retaining/developing human resources for science & technology in Europe

2.B INDICATOR: Budgetary data (Proportion spent on mobility schemes; Balance of expenditure: inward vs outward), % HRST from abroad (stocks indicator) … as % total S&T workforce; … in universities; by student numbers …, etc. Flows of researchers inward/outward (Absolute numbers in/out – per year or Time series comparisons); mobility schemes targeting specific countries –the ones which currently underperform- (inward/outward) (activity indicator).

3.A EU GOAL: capacity building of Latin American higher education and research infrastructure

3.B INDICATOR: Number of MoUs and similar collaborative/exchange agreements with foreign universities etc. (activity indicator); % foreign researchers/staff in university research/teaching staff (activity/flow indicator); % foreign students in student population (flow/quality indicator).

4.A EU GOAL: Tackling grand –global- challenges together

4.B INDICATOR: Share of joint involvement of EU-LAC researchers in major international (both EU such as framework programmes and others) programmes and activities; share of joint publications on grand challenge themes (activity and quality indicator); share of joint membership of international research infrastructures (quality indicator), international programmes and scientific fora dedicated to grand challenge issues (activity indicator).

It goes beyond the scope of this paper to run the analysis of the above listed goals and indicators of result. However, in general, and as

briefly showed in the section above on operational measures/tools, the EU has developed a rather impressive track record of 'results' or 'enabled impact' even if no concrete baselines and target values have been set. Hence, from an EU perspective, the cooperation on science, higher education and innovation towards and with Latin America can arguably be labelled as successful as it has had a considerable impact in various domains. Indeed, the EU appears to be an important cooperation partner in this area for Latin America and in various fields even surpasses the importance of other partners such as the USA. However, when we turn the attention towards the impact these cooperation mechanisms have had on the EU and its objectives related to the EHEA and ERA, the picture looks rather bleach. Take for example the case of mobility, in between 2004 and 2012, the European Commission has calculated that out of 13957 non-EU exchange students, only 1886 originated from Latin America and the Caribbean. Looking at the total (estimated) amount of student mobility in 2010, Miranda (2014) has calculated that a mere share of it (0.006%) are the Latin American scholars travelling to Europe. If one contrasts the amount of exchange students and staff originating from the European's direct neighbourhood (so called ENP countries) or China (close to 120.000 students in total residing in Europe in 2010 of which 3000 came through Erasmus Mundus), it becomes clear how limited the role of Latin America and the Caribbean is in the EU's quest to become the "unified research and education area open to the world" (GHK Consulting and Renmin University, 2011). One of the reasons for this limited involvement of Latin America in the EU's ERA and EHEA frameworks has to do with the current structure and approach taken for cooperating in this policy domain which will be analysed in the section below.

B. Efficiency

Efficiency issues related to the high level dialogues, meetings and summitry

The EU's approach towards Latin America in the area of science, higher education and innovation has been channelled to a large extent in political and bureaucratic summits, meetings and working group sessions. Yet, there are various (practical) difficulties related to this method, limiting an efficient cooperation and hampering a more substantial involvement of Latin America in the EU's (own) science, higher education and innovation agenda. The first problem affecting interregionalism in its summit form is the clarity of their aims and purposes (Selleslaghs, 2017). This refers to the expectations and the benefits it generates. What concrete outcomes are legitimate and realistic to expect from a political dialogue at the highest possible level on a topic which is not considered as 'strategic' or 'high-end'? Whose expectations count most? To what level of detail/concreteness can both regions jointly define a science diplomacy agenda and action plan? It seems that significant doubts and uncertainties about the process exist (Caetano, 2015). This is valid both for the direct participants as well as the different stakeholders involved. High-level dialogues and summits with officials of so many different countries are also expensive exercises. The organization, logistics, communication, transportation and accommodation involved

are a burden for state finance of both regions. Indeed, the high cost of summits is particularly evident when measured against the uncertainty or even the paucity of the results and benefits produced (Selleslaghs, 2017; Whitehead & Barahona 2005). If one considers that most of the costs are often bared by the country that hosts the meeting, and that these kind of events also take place in the less(er) developed Latin American countries, one may wonder if that money could not be better spent otherwise. It is estimated for example that the 2012 Summit of the Americas held in Cartagena, Colombia, cost about 30 million USD, that the 2008 EU-Latin America and the Caribbean Summit in Lima, Peru, cost around 35 million USD (Malamud & Gardini, 2015). In times of crisis and sharp media watch on public expenses, these type of expenses require further scrutiny and (potentially) rethinking (Selleslaghs, 2017).

In spite of these critiques and apparent lack of efficiency, the region-to-region high-level political dialogues or summits are inescapable –and to a certain extent indeed successful- instruments of the EU's interregional approach towards Latin America. A number of theoretical and empirical reasons have been proposed to support this claim. Rhetorical action theory suggests that rhetorical commitments produce actual effects (Schimmelfennig, 2003). That is to say that when a rhetoric and narrative exercise is repeated through time and widely accepted, this shapes political interests, values and legitimacy and therefore it determines policy actions and choices too. Another explanation is provided by the multi-bilateralism approach (Hill & Smith, 2011). Participants have the opportunity to meet the partners in which they are interested and to conduct bilateral talks as well as to form ad hoc alliances, not necessarily related to the topic under discussion in the interregional venue (Selleslaghs, 2017). It was also in this way that the academic summits, a unique framework for cooperation amongst the two regions and often seen as a best practice for complex bottom-up policy making mechanisms, was created (Americasportal, 2017).

Efficiency challenges related to EU-initiated and coordinated projects and programmes

In addition to the high level dialogues and summits, the EU has also chosen to further its science diplomacy agenda by means of an extensive amount of cooperation/capacity building projects and programmes. Yet, despite that on a project level, the various (EU own written) impact assessments report rather positively on the (cost-)efficiency of those projects, there are a number of structural challenges and limitations related to this approach. First of all, these projects are almost exclusively initiated, organised, managed and funded by the EU itself (and more specifically the European Commission), and not Latin America (as a region, be in through CELAC or another regional institution or a national –funding- agency). As a direct consequence thereof, these cooperation projects and programmes risk not reflecting the actual situation/need of Latin Americans and risk not being sufficiently known/communicated across the whole continent. In addition, it appears that the EU has chosen a very 'bottom-up' approach or to go from the 'specific-to-the-general' (Miranda, 2014). As listed above, currently more

than 200 projects and cooperation schemes currently co-exist, yet these projects only have a limited scope/outreach potential and have a timeframe of only 3-5 years. As such, the overall EU science diplomacy agenda risks becoming too scattered/narrowly interpreted at a project level and the overall tendency for cooperation and linkage with general (more abstract) shared objectives and goals becomes blurred. Whereas these projects are imminently bureaucratic in nature, they risk also not being the right approach to address issues (such as recognition of academic curricula, quality assurance system standardisation etc.) which require a more political approach. Third, the (few) large-scale programmes and projects (such as Erasmus Mundus, Marie Curie RISE etc.) that are very (bi-)regional in approach, have had only a limited success for a handful of countries/partner institutions, further hampering the efficiency of the EU science diplomacy approach towards Latin America. Finally, an often stressed reason by EU officials and academics that limits the efficiency –and to a certain extent also the effectiveness- of the EU's science, higher education and innovation cooperation with Latin America has to do with the complexity of the landscape and reality of the higher education and research sector of Latin America itself. In Latin America, as it happens throughout many other regions in the world, there are different stages of institutional development of HEI's with regards to the international collaboration. This is due to diverse organisational structures, funding opportunities, regional or national policies etc. (European University Association, 2012). As a consequence, from a European perspective, it is thus difficult to develop and implement large-scale, all-encompassing EU-Latin America region-to-region cooperation schemes and approaches, as the situation on the ground is largely diffuse and requires further differentiation. As such, it is often argued that in order to establish the sought-for EU-LAC Research/Knowledge Area, LAC should become more of a unified actor/region/sector. The following overview of 'shortcomings' or 'differences' in Latin America's higher education and research sector provides some concrete tools and ideas on how these different stages of development can be levelled out, potentially with support from the EU.

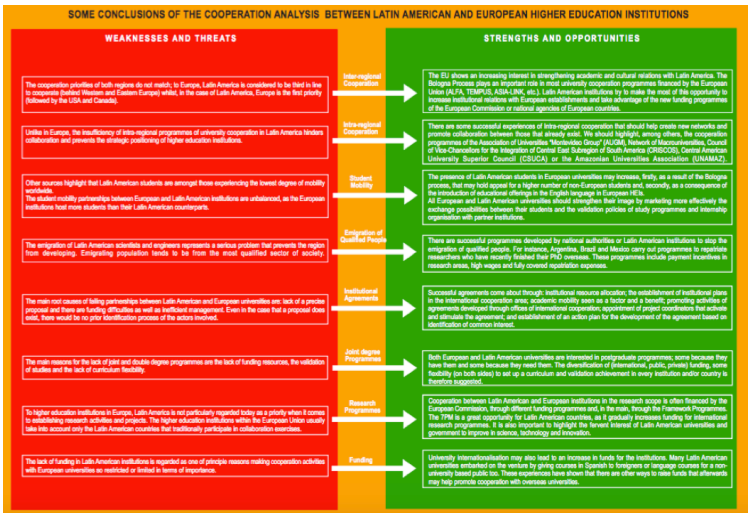

Figure 3: Threats and opportunities for science, higher education and innovation collaboration between the EU and Latin America, source: PIHE network (2017)

Concluding Remarks

By providing a critical assessment of EU-Latin America interregional cooperation in the domain of science diplomacy, this paper aimed at filling a notable academic (and policy-making) gap in the field of EU-driven interregionalism, EU foreign policy (analysis) and the external aspects of academic regionalism/regional governance studies. By analysing the EU's declaratory and operational foreign policy approaches in this particular policy area, it became clear that the EU is pushing for science diplomacy towards Latin America at various levels and in numerous projects and initiatives. Some are unique in nature, such as the 'Academic Summits', and some are related to the external aspects of internal policy making (i.e. participation in Horizon 2020). Ever since the first EU-Latin America summit was organised in 1999, cooperation in the area of science, higher education and innovation appeared consistently in every declaration and action plan as a core element of the EU-Latin America interregional partnership. With a shared ambition to create the "EU-LAC Knowledge Area", recently redefined as the "EU-LAC Research Area", more than 50 countries at both sides of the Atlantic have expressed their wish to pursue deeper academic cooperation by means of an imminently interregional approach. Yet, if the two regions are to achieve this goal, they will have to step up their efforts and redefine some of the most important operational tools utilised to achieve this end. Whereas close to a 1/3rd of all EU funding goes to only 3 Latin American countries and no more than 10 large universities/research organisations, the EU risks loosing grip with the greater Latin American region. Various efficiency issues were also identified related to the summitry exercise and the chosen approach to go "from the specific to the general". From the analysis above, it also became clear that the EU is not using all operational instruments it has at its disposal to further its science diplomacy agenda in Latin America: it has not developed a network of science counsellors or officers in Latin America and cooperation and investment in shared research infrastructure has only took place sporadically. In addition, whereas four Latin American states have also signed bilateral cooperation agreements with the EU, incentives for the EU to continue working through the more cumbersome large-scale 'continental' or interregional programmes seem to diminish day by day. If other Latin American countries would thus like to either continue, or improve cooperation with the EU in the domain of science, higher education and innovation, it appears the CELAC framework would work best in placing Latin America in a better position to interact with the EU as one region. Only then, the Latin American states could (continue) engaging more fully with the EU as an equal, autonomous and independent partner as manifested in the shared Vision 2030.

Footnotes

1 This is a non-exhaustive list of platforms and initiatives created over the last fifteen years. For a full overview, see the EL-CSID database at www.el-csid.eu.

2 Yet, from a Latin American perspective, the achieved impact is less obvious and challenged by various Latin American countries and scholars. See for example the work by Mexican scholars G. Arrendondo & J. Castillo (2004).

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